

Eliminating chlorine: The successful move to *green* water disinfection technology

Customer Name: SPC Ardmona - Australia

a Coca Cola Amatil Group company

Industry/Market Sector: Food & Beverage

Application: Process Water Disinfection – Chlorine Replacement

Hydro-Optic Disinfection Model installed: R200DL

Date of installation: January 2007

Summary of Results:

- Savings of AU\$40,000 (US\$35,330) resulting from reduced chlorine-associated and maintenance expenses during the first year
- Sustained microbial results of <10 CFU/ml
- Elimination of chlorine dioxide use
- Stop to massive corrosion to expensive cookers
- Improved safety resulting from decreased exposure to chlorine dioxide

Customer Background:

One of the most well-known and respected Australian food manufacturers, *SPC Ardmona*, was created in January 2002 through the amalgamation of two world class organizations, S.P.C. Limited and Ardmona Foods Limited, thereby forming a food corporation with a unified industry experience of over 160 years of growing, processing and supplying deciduous / fleshy fruit.

In February 2005, *Coca-Cola Amatil* completed their acquisition of SPC Ardmona Pty Ltd and it is now one of their group companies.

Customer goals / challenges:

At the SPC Ardmona plant, the incoming water is municipal and the company treated it through the use of a chlorine dioxide dosing unit which they were looking to replace. They wanted a highly effective, environmentally-friendly disinfection method that could also reduce chemical handling and storage on the SPC Ardmona site as well as the maintenance associated with chemical usage.

As food manufacturers, SPC Ardmona is held to a strict set of disinfection requirements. With their chlorine dioxide dosing system, the aim was to set a free chlorine concentration of 0.4ppm in the plant's water. The microbiological standards are <1CFU/ml of Coliforms and E. Coli and Total Counts of less than 10CFU/ml.

The solution provided by Atlantium

SPC Ardmona's disinfection goals, together with the flow rate requirements of 150m³/hr and varying UV Transmissivity (UVT) from 92%, led Atlantium's Food & Beverage team to recommend the Hydro-Optic Disinfection system's R200DL (dual lamp) model to deliver a UV dose of 80mJ/cm².

Atlantium's system disinfects the water of one of the company's two tanks; the second tank is used for trade waste. The water in the tank constantly circulates through the system (i.e., it runs continuously).

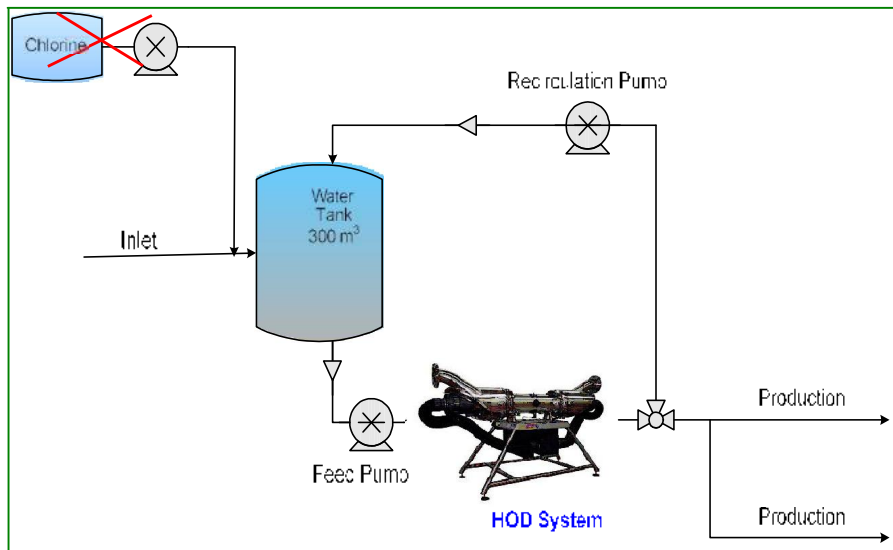


Diagram of the R200DL installation at SPC Ardmona: Four months after installation, SPC Ardmona eliminated chlorine dioxide from their disinfection protocol.

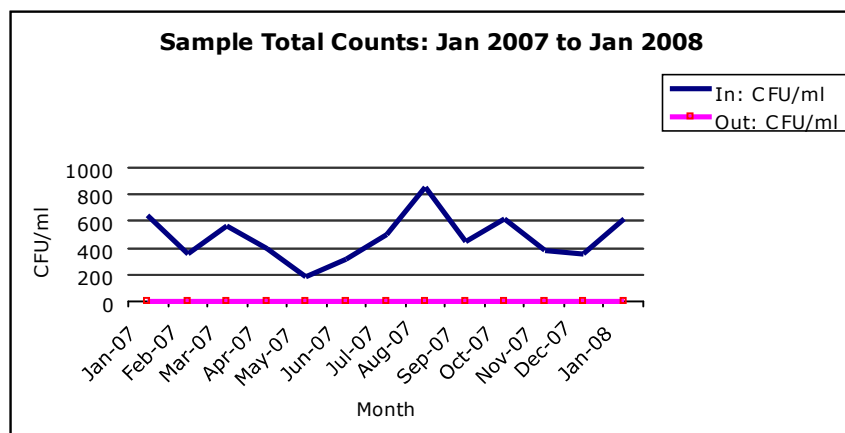
Disinfection using the Hydro-Optic Disinfection system

Atlantium's system is used at SPC Ardmona to disinfect the water for several of the plant's manufacturing processes, including:

- Conveying up to 1000 tons of produce within a 24 hour period
- Disinfecting bottles and cans made of coated tin and plastic (this cleaning process also uses steam)
- Cleaning the food processing equipment such as autoclaves/pressure cookers
- Cooling hot bottles and cans with disinfected water sent to cooling towers

During the first four months following installation, the previous concentration of 0.4 ppm of chlorine was reduced to 0.01 ppm. The goal though, was to eliminate the use of chlorine dioxide altogether. After four months, in May 2007, the use chlorine dioxide was indeed terminated.

Results tracked over a one year period showed that Atlantium's system consistently met the manufacturer's disinfection goals for Coliforms, E. coli and total bacteria counts.



Sustained microbial results over a one year period

SPC Ardmona's benefits of switching to *green* Hydro-Optic Disinfection

By eliminating chlorine dioxide from the disinfection process, "major health, safety and maintenance benefits have been achieved by not having to store and handle large quantities of chemicals. Process water purity has been enhanced and corrosion of machinery affected by chlorine has been reduced," says SPC Ardmona Maintenance Supervisor Mr. Mick Williams.

He adds that the system "completely lived up to our expectations in its first year of service, performing reliably and making it particularly simple to budget CIP (cleaning in place) and lock in maintenance costs each year." SPC saved AU\$40,000 in 2007 on maintenance and other chemical-related expenses.

Expanding the use of the Atlantium system

The level of satisfaction SPC Ardmona has with the Atlantium system has given rise to plans for using the technology for another application. Mr. Williams says, "We are kicking around an idea of taking water from our trade waste (instead of paying to have it treated at the local treatment works), run it through a filtration system with an Atlantium installed and send the treated water to the main reservoir to save topping it up from the local town water supply. This idea is in its infancy stages and more focus will be put into it at the end of our heavy production season."

SPC plans include making piping changes to allow water to be directed to fruit sprays and cleaners so an Atlantium system can be for washing fruit.